

33. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve comprising:

(1) a valve seat that comprises:

- (i) a seal surface; and
- (ii) an orifice that is circumscribed by the seal surface.

E1

(2) a single flexible flap that has a fixed portion and a free portion and first and second opposing ends, the first end of the single flexible flap being associated with the fixed portion of the flap so as to remain at rest during an exhalation, and the second end being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second end also being located below the first end when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith, under any orientation of the valve, when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

(i) an opening that is disposed directly in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation;

(ii) a fluid impermeable ceiling that increases in height in the direction of the flexible flap from the first end to the second end; and

(iii) cross members that are disposed within the opening of the valve cover.

65. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
(b) an exhalation valve that is attached to the mask body, the exhalation valve

E2 comprising:

(1) a valve seat that comprises:

- (i) a seal surface; and
(ii) an orifice that is surrounded by the seal surface.

(2) a single flexible flap that is supported by the valve seat and that has a stationary portion and only one free portion and a peripheral edge that includes stationary and free segments, the stationary segment of the single flexible flap's peripheral edge being associated with the stationary portion of the flap so as to remain at rest during an exhalation, and the free segment of the flap's peripheral edge being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the free segment also being located below the stationary segment when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith, under any orientation of the valve, when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

(i) an opening that is disposed directly in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation;

(ii) a fluid impermeable ceiling that is spaced further from the valve seat above the free segment of the flap's peripheral edge than above the stationary segment of the flap's peripheral edge; and

(iii) cross members that are disposed within the opening of the valve cover.

66. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve comprising:

(1) a valve seat that comprises:

- (i) a seal surface; and
- (ii) an orifice that is circumscribed by the seal surface.

(2) a single flexible flap that is supported by the valve seat and that has a stationary portion and only one free portion and a peripheral edge that includes stationary and free segments, the stationary segment of the single flexible flap's peripheral edge being associated with the stationary portion of the flap so as to remain at rest during an exhalation, and the free segment of the flap's peripheral edge being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the free segment also being located below the stationary segment when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith, under any orientation of the valve, when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

- (i) an opening that is disposed directly in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation;
- (ii) a fluid impermeable ceiling that is higher above the free segment of the flap's peripheral edge than above the stationary segment of the flap's peripheral edge; and
- (iii) cross members that are disposed within the opening of the valve cover;

wherein during an exhalation, the free portion of the flexible flap lifts from the seal surface and moves towards the fluid impermeable ceiling so that exhaled air can exit through the opening in the valve cover.

67. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve comprising:

(1) a valve seat that comprises:

(i) an orifice; and

(ii) a seal surface that surrounds the orifice when the valve seat is viewed from the front;

(2) a single flexible flap that is supported by the valve seat and that has a stationary portion and a free portion and a peripheral edge that includes stationary and free segments, the stationary segment of the single flexible flap's peripheral edge being associated with the stationary portion of the flap so as to remain at rest during an exhalation, and the free segment of the flap's peripheral edge being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the free segment also being located below the stationary segment when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith, under any orientation of the valve, when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

(i) an opening that is disposed in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation; and

(ii) a fluid impermeable ceiling that is higher above the free segment of the flap's peripheral edge than above the stationary segment of the flap's peripheral edge;

wherein during an exhalation, the free portion of the flexible flap lifts from the seal surface and moves toward the fluid impermeable ceiling so that exhaled air can exit through the opening in the valve cover.

Please add new claims 69 and 70.

69. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve

comprising:

(1) a valve seat that comprises:

- (i) a seal surface; and
- (ii) an orifice that is circumscribed by the seal surface.

(2) a single flexible flap that has a fixed portion and a free portion and first and second opposing ends, the first end of the single flexible flap being associated with the fixed portion of the flap so as to remain at rest during an exhalation, and the second end being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second end also being located below the first end when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface under any orientation of the valve when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

- (i) an opening that is disposed in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation; and
- (ii) a fluid impermeable ceiling that has an interior surface that has a means for preventing the free end of the flexible flap from adhering to the fluid-impermeable ceiling when moisture is present on the ceiling or on the flexible flap.

70. The filtering face mask of claim 69, wherein the means for preventing the free end of the flexible flap from adhering to the ceiling is selected from the group consisting of a ribbed pattern, a coarse pattern, and a release surface.

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